H.R. 2011, "NATIONAL STRATEGIC AND CRITICAL MINERALS POLICY ACT" AND H.R. 1314, "RESOURCE ASSESSMENT OF RARE EARTHS ACT OF 2011"

LEGISLATIVE HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

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LEGISLATIVE HEARING ON H.R. 2011, "NATIONAL STRATEGIC AND CRITICAL MINERALS POLICY ACT" AND H.R. 1314, "RESOURCE ASSESSMENT OF RARE EARTHS ACT OF 2011"

Friday, June 3, 2011
U.S. House of Representatives
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
Washington, D.C.

The Subcommittee met, pursuant to call, at 10:00 a.m. in Room 1324, Longworth House Office Building, Hon. Doug Lamborn, [Chairman of the Subcommittee] presiding.

Present: Representatives Lamborn, Thompson, Flores, Johnson of Ohio, Hastings (ex officio), Holt, and Markey (ex officio).

Also present: Representative Johnson of Georgia.

STATEMENT OF HON. DOUG LAMBORN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. LAMBORN. The Committee will come to order. The Chairman notes the presence of a quorum, which under Committee Rule 3[e] is two Members. The Subcommittee on Energy and Mineral Resources is meeting today for an oversight hearing to hear testimony on H.R. 2011, National Strategic and Critical Minerals Policy Act and H.R. 1314, Resource Assessment of Rare Earths Act of 2011.

Under Committee Rule 4[f], opening statements are limited to the Chairman and Ranking Member of the Subcommittee. However, I intend to recognize full Committee Chairman Hastings and Ranking Member Markey for opening statements, if they wish to make one. In addition, I ask unanimous consent to include any other Member's opening statement in the hearing record if submitted to the clerk by close of business today. Hearing no objection, so ordered.

I also ask unanimous consent that the gentleman from Georgia, Mr. Johnson, who is not a member of the Natural Resources Committee, but is involved in the legislation we will be hearing today, be allowed to join us on the dais and ask questions during this hearing. Without objection, so ordered.

Now I recognize myself for five minutes.

We are here today to focus on our nation's strategic and critical minerals policy. For too long our national minerals policy has been neglected. Today, as new energy development is increasingly dependent on minerals that are less available, and in some cases the object of a pure monopoly, we can no longer afford to leave our domestic mineral needs on the back burner.

This is not the last hearing that this Committee will hold to consider minerals issues or legislation. There are currently more than a half dozen bills that impact mining and minerals issues pending before the Subcommittee, and I expect that before this Congress is over we will see more bills introduced, considered, and likely passed by this Committee.

America is desperate for jobs. This is even clearer today as we learn that job creation has plummeted in the face of rising energy prices. May job creation was only 54,000 jobs, pushing our unemployment rate back up. Americans everywhere are desperate to get our economy running again and building a stronger foundation of domestic mineral supply can be an important aspect of rebuilding our economy.

Mining jobs pay better and have better benefits than nearly any other rural community job. The Congressional Research Service has repeatedly reported to the Committee that mining jobs are the top paying, non-supervisory positions in the country. Aren't these the sort of jobs that we want Americans to have? Yet more domestic mining isn't just about the jobs in the mines. There are thousands of geologists, biologists, and environmental engineers. It is about the tens of thousands of jobs in the industries that support our miners from the Caterpillar factories in Illinois to Red Wing Boots in Minnesota, from St. Pierre Chains in Worcester, Massachusetts to Airflow Catalyst Systems in Rochester, New York.

Americans everywhere benefit from more domestic mining. The two bills we are going to examine today call for reports from the Department of the Interior to give us a better understanding of resources. However, these two bills could not be more different in their approaches. In many ways, they represent the fundamental difference that appears too often between those of us on this Committee.

H.R. 2011, the National Strategic and Critical Minerals Policy Act will provide essential facts to help us strengthen and improve our national mineral policy. Specifically, the bill reiterates existing national mineral policy goals; directs the Secretary of the Interior to coordinate a governmentwide assessment of the nation's mineral resources, and availability to meet current and future strategic and critical mineral needs; requires the Secretary of the Interior to evaluate factors impacting domestic mineral development, including workforce, access, permitting, and duplicative regulatory requirements; and identifies areas for improvement.

It directs the Interior Department to assemble the report within six months, requires an annual progress report, beginning one year after the date of enactment of the Act for the following two years, outlining the progress made in reaching the policy goals described in the bill and accomplishes this goal with an authorization of $1 billion over a two-year period.

H.R. 1314, the Resource Assessment of Rare Earths Act of 2011 directs the USGS, in cooperation with other foreign geological surveys, to conduct a three-year comprehensive international assessment of only rare earth elements, and it does call for a three-year report at a cost of $10 million. So there are elements in contrast between the two bills.

America is totally dependent on rare earth minerals today. We are losing manufacturing, domestic jobs, and weakening our economy every day because we don't have the supplies of critical minerals necessary to develop our new technologies here at home. Congress can and must act. Before the Committee today, we have two approaches representing the responses of Congress to these challenges. As the author of one of these bills, I hope this hearing will help the American people clearly judge the options before us in Congress and the plans and policies that are put forward to solve the challenges facing America.

I also want to recognize another Member from Colorado, my friend and colleague, Representative Mike Coffman, who has been working on the more narrow, but vital issue of rare earth metals. He has some legislation already filed which has some meritorious provisions in it that I can certainly support.

Developing our nation's mineral resources is not only an integral part of an all-of-the-above energy plan, but it will create long-term family wage jobs, stimulate our economy, and reduce our foreign dependence on mineral resources.

Actually, before I recognize the Ranking Member, I want to thank the witnesses for being here. You will be introduced shortly. I appreciate your time and your availability for questions from the members of the Subcommittee.

I now recognize Ranking Member Holt of New Jersey for five minutes for his opening statement.

[The prepared statement of Mr. Lamborn follows:]

Statement of The Honorable Doug Lamborn, Chairman, Subcommittee on Energy and Mineral Resources

We are here today to focus on our Nation's Strategic and Critical Minerals Policy. For too long, our national mineral policy has been neglected. Today, as new energy development is increasingly dependent on minerals that are less available, and in some cases the object of a pure monopoly, we can no longer afford to leave our domestic mineral needs on the back burner.

This is not the last hearing that this Committee will hold to consider minerals issues or legislation. There are currently more than a half dozen bills that impact mining and minerals issues pending before the Subcommittee, including a broader rare earth bill by my colleague from Colorado, Mr. Coffman, and I expect that before this Congress is over we will see more bills introduced, considered, and likely passed by this Committee.

America is desperate for jobs. This is even clearer today as we learn that job creation has plummeted in the face or rising energy prices. May job creation was only 54,000 jobs, pushing our unemployment rate back up. American's everywhere are desperate to get our economy running again and building a stronger foundation of domestic mineral supply can be an important aspect of rebuilding our economy. Mining jobs pay better and have better benefits then nearly any other rural community job. The Congressional Research Service has repeatedly reported to the Committee that mining jobs are the top paying nonsupervisory positions in the country. Aren't these the sort of jobs that we want American's to have

Yet more domestic mining isn't just about the jobs in the mines, its thousands of geologists, biologists, and environmental engineers, it is about the tens of thousands of jobs in the industries that support our miners. From the Caterpillar factories in Illinois to Red Wing Boots in Minnesota, from St. Pierre Chains in Woos-

ter, MA to Airflow Catalyst Systems in Rochester, NY. American's everywhere benefit from more domestic mining.

The two bills we are going to examine today call for reports from the Department of the Interior to give us a better understanding of resources.

However, these two bills could not be more different in their approaches. In many ways, they represent the fundamental difference that appears so often between those of us on this Committee.

H.R. 2011 the *"National Strategic and Critical Minerals Policy Act"* will provide essential facts to help us strengthen and improve our national mineral policy:

Specifically, the bill:

- Reiterates existing National Mineral Policy goals;
- Directs the Secretary of the Interior to coordinate a government wide assessment of the Nation's mineral resources and availability to meet current and future strategic and critical mineral needs.
- Requires the Secretary of the Interior to evaluate factors impacting domestic mineral development, including workforce, access, permitting and duplicative regulatory requirements as well as identify areas for improvement.
- Directs the Interior Department to assemble the report within six months.
- Requires an annual progress report, beginning one year after the date of enactment of the Act for the following two years, outlining the progress made in reaching the policy goals described in the bill.
- And accomplishes this goal with an authorization of $1 million over a two year period.

H.R. 1314 the *"Resource Assessment of Rare Earths Act of 2011"* directs the United States Geological Survey (USGS), in cooperation with other foreign geological surveys, to conduct a three-year, comprehensive international assessment of **only** rare earth elements. But it does all this while calling for a report to Congress in 3 years at a cost of $10 million.

America is totally dependent on rare earth minerals today. We are losing manufacturing, domestic jobs, and weakening our economy every day because we don't have the supplies of critical minerals necessary to develop our new technologies here at home.

Congress can and must act, and before the Committee today we have two approaches representing the responses of Congress to these challenges. As the author of one of these bills, I hope this hearing will help the American people clearly judge the options before us in Congress and the plans and policies that are put forward to solve the challenges facing America.

Developing our Nation's mineral resources is not only an integral part of an all-of-the-above energy plan but it will create long-term family wage jobs, stimulate our economy and reduce our foreign dependence on mineral resources.

I look forward to hearing from our witnesses today.

STATEMENT OF HON. RUSH D. HOLT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. HOLT. Thank you, Chairman Lamborn and thank you for continuing this important series of hearings.

Last week the Committee began exploring challenges that we face with regard to critical and strategic materials, and I am pleased that we are moving forward to look at some specific legislation, including yours, to address them.

This is about the building blocks of our high-tech economy from hybrid vehicles to smart phones to missile guidance systems. A nation that wishes to compete in the modern world and to provide the highest quality of life for its citizens must have a reliable stream of critical materials and minerals.

I have joined with Representative Johnson, who I am pleased is with us today, and Ranking Member Markey in cosponsoring one of the bills under discussion today, the Resource Assessment of Rare Earths Act, or what goes by the acronym the RARE Act. Our understanding of rare earths and other critical mineral deposits is still young and not highly developed, as I understand it, especially

compared to what we know about oil and gas and other things that seem to preoccupy us.

Developing alternatives to Chinese rare earth supplies begins with increasing our understanding of what resources are available, where they are located, how they can be recovered economically, which specific minerals we will need to meet future industrial demand, what tradeoffs there are, and what substitutions are available. I believe that the RARE Act does take the right approach to finding these answers. I also concur with some of the objectives in Mr. Lamborn's bill, the National Strategic and Critical Minerals Policy Act.

Identifying overlapping or redundant requirements in the permitting process certainly could be helpful in developing critical minerals more expeditiously. I also appreciate the attention the bill gives to Federal human resources. Recruiting and retaining skilled scientists in the Federal workforce is very important and it is a difficult challenge, especially with many government branches expecting increasing numbers of retirements in the coming years.

A couple of concerns, however, with this legislation. Outside of the title, I don't see any focus on strategic and critical minerals. There are 133 non-fuel minerals on which the U.S. Geological Survey keeps statistics. This long list includes clay, crushed stone, granite, sand and gravel, scrap iron, et cetera. This bill would ask the Bureau of Land Management to perform an assessment of all of those non-fuel minerals on U.S. public lands and that is a vast undertaking. I imagine that assessment alone would require more money and time than the bill authorizes altogether. Yet, that is one of only seven issues that the bill tasks to the Department of the Interior for addressing.

Whether it is appropriate or not, these are lean budget times and I do think we need to focus government resources on the areas of greatest need. In my view, the greatest needs are with rare earth minerals, or at least with some rare earth minerals, and a select few other critical minerals like those identified by the National Research Council, which we heard about in a hearing a week ago.

So I hope to see the scope of this bill better directed. We clearly have an opportunity with some of the ideas in both of these bills to improve our understanding of critical and strategic mineral resources as well as to give our domestic industry a leg up in building a stronger supply chain.

I look forward to hearing from our witnesses. I am pleased to see that the Chairman believes in recycling and has recycled one of our witnesses from a day ago and I look forward to the testimony. Thank you, Mr. Chairman.

[The prepared statement of Mr. Holt follows:]

Statement of The Honorable Rush D. Holt, Ranking Member, Subcommittee on Energy and Mineral Resources

Thank you Chairman Lamborn for calling this important legislative hearing today.

Last week, the committee began exploring the challenges we face with regard to critical and strategic minerals. I am pleased that we are moving forward to consider specific legislative proposals to address them.

This issue is all about the building blocks of the high-tech economy. From hybrid vehicles to iPhones to missile guidance systems, a nation that wishes to compete in high-tech, value-added manufacturing in the 21st Century must have a reliable

source of critical minerals. I have joined Ranking Member Markey and Representative Johnson in co-sponsoring one of the bills under discussion today, the *Resource Assessment of Rare Earths Act or RARE Act.*

Our understanding of rare earth and other critical mineral deposits is still young, especially compared to what we know about oil and gas resources and other minerals like copper and gold. Developing alternatives to Chinese rare earth supplies begins with increasing our understanding of what resources are available, where they are located in economically minable concentrations, and which specific minerals we will need to meet future industrial demand. I believe the RARE Act takes the right approach in trying to find those answers.

I also concur with some of the objectives of the other bill under consideration today, the *National Strategic and Critical Minerals Policy Act.* Identifying overlapping or redundant requirements in the permitting process could be helpful in developing critical minerals more expeditiously. I also appreciate the attention the bill gives to federal human resources. Recruiting and retaining skilled scientists in the federal workforce is very important, especially with many government branches expecting increasing numbers of retirements in the coming years.

I do have concerns about this bill, however. Outside of the title, I do not see any focus on strategic and critical minerals. There are 133 non-fuel minerals on which the U.S. Geological Survey keeps statistics, including clay, crushed stone, granite, sand and gravel, and scrap iron. This bill would ask the Bureau of Land Management to perform an assessment of all of those non-fuel minerals on U.S. public lands. That is a vast undertaking. I imagine that assessment alone would require more money and time than the bill authorizes. Yet that is only one of the 7 issues that the bill tasks the Interior Department with addressing. Whether it is appropriate or not, these are lean budget times, and I do think we need to focus government resources on the areas of greatest need. And in my view, the greatest needs are with rare earth minerals and a select few other critical minerals like those identified by the National Research Council, which we heard about in the hearing last week. So I would hope to see the scope of this bill narrowed.

We clearly have an opportunity with some of the ideas in these bills to broaden our understanding of critical and strategic mineral resources as well as give our domestic industry a leg up in building stronger supply chains that are less vulnerable to supply disruptions.

I look forward to hearing from the witnesses on the best path forward in doing that. Thank you.

Mr. LAMBORN. By the gentleman from Alaska only making one trip here, there is a smaller carbon footprint.

Now I am honored to recognize the Chairman of the full Natural Resources Committee, Doc Hastings of Washington, for five minutes for his opening statement.

STATEMENT OF HON. DOC HASTINGS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mr. HASTINGS. Thank you very much, Mr. Chairman. Thank you for holding this hearing and thank you once again for the courtesy of allowing me to participate.

Too often the importance of our mineral resources gets overlooked. We all understand the need for fuel and electricity, but many Americans don't recognize or appreciate the need for minerals. Minerals are not only the building blocks of the earth, but are indispensable to our health, economy, technology, renewable energy, national defense, and quality of life.

From cars to shampoos, computers to telephones, there is likely not a moment in the day that we don't use a product that is made from minerals. Even renewable and alternative energy is dependent on minerals. Wind turbines, for example, are made from zinc. Solar panels require silicone and titanium, and nuclear energy is made from uranium. This is why minerals are so vital to achieving an all-of-the-above energy plan in creating new jobs.

We have vast mineral resources here in the United States, including critical rare earth elements. The USGS recently released a report that revealed that 13 million metric tons of rare earth elements are known within deposits within 14 states. However, it makes no difference what our domestic supplies are if we are unable to harness and mine those minerals.

As is the case with many of our resources, unfortunately, we are failing to adequately produce minerals here at home, in part, due to permitting delays and bureaucratic obstacles. As a result, we are increasingly dependent on foreign nations for our critical and essential mineral needs.

As the Chairman just noted, China holds 97 percent of critical rare earth elements and their threat of tightening the supplies puts our economic and national security in jeopardy. The United States cannot remain economically competitive if we continue to be left to the mercy of foreign countries for our critical minerals. The United States cannot remain economically competitive if we continue to send American jobs overseas.

H.R. 2011, authored by Chairman Lamborn, the National Strategic and Critical Minerals Policy Act of 2011, lays the groundwork for a fundamental change in the United States' mineral policy. The bill would require a governmentwide survey of our national mineral resources and assess our nation's ability to meet our own strategic and critical mineral needs. The bill also requires the Secretary of the Interior to identify factors that are hindering domestic mineral development, such as the lack of access and redundant regulatory requirements, and outlines areas for the improvement in those areas.

So I believe this bill is an important first step toward increasing our domestic mineral production, creating by inference good paying American jobs, and reducing our dependence on foreign minerals, and as a result strengthen our national security.

So with that, Mr. Chairman, thank you for your courtesy and I yield back my time.

[The prepared statement of Mr. Hastings follows:]

Statement of The Honorable Doc Hastings, Chairman, House Committee on Natural Resources, on H.R. 2011 and H.R. 1314

Thank you, Subcommittee Chairman Lamborn for holding this legislative hearing today.

Too often, the importance of our mineral resources gets overlooked. We all understand our need for fuel and electricity, but many Americans don't fully recognize or appreciate the need for minerals.

Minerals are not only the building blocks of the wealth, but are the indispensible to our health, economy, technology, renewable energy, national defense and quality of life.

From shampoos to cars, computers and telephones, there is likely not a moment in the day when we don't use a product that is made from minerals.

Even renewable and alternative energy is dependent on minerals. Wind turbines are made with zinc, solar panels require silicon and titanium, and nuclear energy is made from uranium. This is why minerals are vital to achieving an all-of-the-above energy plan and creating new American jobs.

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China holds 97% of critical rare earth elements, and their threat of tightening supplies puts our economic and natural security in jeopardy.

The United States cannot remain economically competitive if we continue to be left to the mercy of foreign countries for their critical minerals.

And the United States cannot remain economical competitive if we continue to send American jobs overseas.

H.R. 2011, the *National Strategic and Critical Minerals Policy Act of 2011,* lays the groundwork for a fundamental change in the United States' mineral policy.

The bill would require a government-wide survey of our national minerals resources and assess our Nation's ability to meet our own strategic and critical mineral needs.

The bill also requires the Secretary of the Interior to identify factors that are hindering domestic mineral development, such as lack of access and redundant regulatory requirements and outline areas for improvement.

I believe this bill is an important first step towards increasing our domestic mineral production, create good-paying American jobs, reducing our dependence on foreign minerals and strengthening our national security.

Mr. LAMBORN. Thank you. I now want to recognize the full Natural Resources Committee Ranking Member, Ed Markey of Massachusetts for five minutes for his opening statement.

STATEMENT OF HON. EDWARD MARKEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS

Mr. MARKEY. Thank you, Mr. Chairman very much.

Rare earths are a group of 17 elements with unique properties that are becoming extremely important for high-tech manufacturing. Yet, I imagine that besides our resident scientist, Mr. Holt, most of us couldn't name a single rare earth element. But rather than trying to remember names like terbium or erbium or dysprosium or neodymium let us just call them all "importium" because that's what we are doing.

[Laughter.]

Mr. MARKEY. We are importing them because we haven't done the research. We are importing them because we haven't invested in domestic supply chains. All these materials that are vital to the defense sector and vital to high-growth industries like clean energy, we have to import all of them from China. This is not a wise strategy, and I sense that we are coming around to a bipartisan agreement on that.

The Natural Resources Committee, with our jurisdiction over the United States Geological Survey, has a very important role to play in developing solutions to the critical minerals challenge. That is why Mr. Holt and I have worked very closely with Mr. Johnson of Georgia in crafting H.R. 1314, the Resource Assessment of Rare Earths Act of 2011, or the RARE Act. I am pleased the Subcommittee is holding this hearing today to take a closer look at it.

The RARE Act tasks the USGS with conducting a focused, global assessment of rare earth mineral resources and potential supply sources in coordination with other national geological surveys. Since the prevalence of different rare earth elements can vary greatly, depending on the deposit, the USGS assessment would identify and quantify supplies of each rare earth element individually. It would also identify other potential issues relating to the

full supply chain of rare earth mining and processing to produce end use products.

Importantly, the legislation requires the USGS to evaluate other critical minerals beyond rare earths as well as the likelihood and impacts of any potential supply restrictions. The long-term success of American manufacturing depends on maintaining an edge and producing high-tech, innovation-oriented goods. Without a reliable supply of the key ingredient like rare earth minerals, these industries and workers will be vulnerable to the predatory trade practices of China.

I believe that the research called for under the RARE Act will dramatically enhance our understanding of critical mineral reserves and help establish reliable supplies of critical minerals for U.S. industry. That is why the bill has been endorsed by the U.S. Magnetic Materials Association.

The bill is quite simple. It just requires a reporting requirement for the U.S. Geological Survey to give us some of the information we need to better understand the rare earth mineral resources that we have here in the United States. I do think that there is a difference between some of the rare earth minerals that are so critical to America's high-tech leadership and more prosaic minerals like cooper that are pretty widely available and don't have the same significance.

So I think by dividing the question we focus in on what has become a central issue, especially in our relationship with China. I yield back the balance of my time.

[The prepared statement of Mr. Markey follows:]

Statement of The Honorable Edward J. Markey, Ranking Member, Committee on Natural Resources

Rare earths are a group of 17 elements with unique properties that are becoming extremely important for high-tech manufacturing. Yet, I imagine that besides our resident scientist—Mr. Holt—most of us couldn't name a single rare earth element!

But rather than trying to remember names like terbium, europium, dysprosium, or neodymium, we should just call all of them "importium." Because that's what we're doing! We're importing 'em because we haven't done the research. We're importing 'em because we haven't invested in domestic supply chains. All these materials that are vital to the defense sector and vital to high-growth industries like clean energy, we have to import all of them from China!

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The Natural Resources Committee, with our jurisdiction over the United States Geological Survey, has a very important role to play in developing solutions to the critical mineral challenge.

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The RARE Act tasks the USGS with conducting a focused global assessment of rare earth mineral resources and potential supply sources in coordination with other national geological surveys. Since the prevalence of different rare earth elements can vary greatly depending on the deposit, the USGS assessment would identify and quantify supplies of each rare earth element individually.

It would also identify other potential issues relating to the full supply chain of rare earth mining and processing to produce end-use products. Importantly, the legislation requires the USGS to evaluate other critical minerals beyond rare earths, as well as the likelihood and impacts of any potential supply restrictions.

The long-term success of American manufacturing depends on maintaining an edge in producing high-tech, innovation-oriented goods. Without a reliable supply of

the key ingredients, like rare earth minerals, these industries and workers will be vulnerable to the predatory trade practices of China.

I believe that the research called for under the RARE Act will dramatically enhance our understanding of critical mineral reserves, and help establish reliable supplies of critical minerals for U.S. industry. That is why the bill has been endorsed by the U.S. Magnetic Materials Association. That is why the bill was included in the Democratic "Make It in America" legislative package. And that is why I am proud to join Mr. Johnson in sponsoring it.

I thank the Chairman for calling this hearing and I look forward to hearing the views of our witnesses here today.

Mr. LAMBORN. Thank you.

Now I would like to introduce the witnesses who are already seated. We have four today. Jeff L. Doebrich, Mineral Resources Program Coordinator [Acting] for the U.S. Geological Survey, Department of the Interior accompanied today by Marcilynn Burke, Deputy Director of the Bureau of Land Management. The Honorable Dan Sullivan, Commissioner of the Alaska Department of Natural Resources, Steve Duclos, Chief Scientist and Manager of Minerals Sustainability for General Electric on behalf of the National Association of Manufacturers, and James B. Engdahl, President and CEO of Great Western Mineral Group..

Thank you all for being here. Like all of our witnesses, your full testimony will appear in the hearing record, so I ask you to keep your oral statements to five minutes as outlined in the invitation letter to you.

Our microphones are not automatic, so you have to push the button when you start your testimony. The lights are structured so that after four minutes, the yellow light will come on, and after five minutes the red light comes on.

Mr. Doebrich, you may begin.

STATEMENT OF JEFF L. DOEBRICH, MINERAL RESOURCES PROGRAM COORDINATOR, ACTING, U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR

Mr. DOEBRICH. Good morning, Mr. Chairman and members of the Subcommittee. Thank you for the opportunity to appear before you today.

In my opening statement, I will briefly discuss both of these important bills. I would like to introduce Marcilynn Burke, Deputy Director, Bureau of Land Management who is here to respond to any questions on the BLM-related provisions of H.R. 2011.

H.R. 2011 requires the Secretary of the Interior, through the BLM and the USGS, to assess the capability of the United States to meet the demands for minerals essential to manufacturing competitiveness and economic and national security. It requires the Secretary to assess the non-fossil fuel potential of lands under the jurisdiction of the BLM and the U.S. Forest Service and to identify anticipated mineral requirements, current sources of these minerals, implications of shortages, timelines for mineral development projects on public lands, and the cost of litigation as well as an assessment of the Federal workforce and its ability to meet the challenges of the critical minerals issue.

H.R. 2011 requires far-reaching analysis of data spanning the jurisdictions of the Departments of the Interior, Agriculture, Defense, Commerce, and Justice as well as the Office of Personnel Manage-

ment. The administrative time and cost of this work would likely exceed the 180 days and $1 million authorized by the legislation.

H.R. 2011 identifies some important goals and we appreciate the opportunity to work with the Committee and the other affected agencies to take into account these resource considerations. We also would like to work with the Committee on language clarifying the minerals under consideration.

H.R. 1314, the Resource Assessment of Rare Earths Act, outlines a reasonable approach to properly assess the global endowment of rare earth resources to identify potential future supplies and to better understand future potential sources needed for U.S. industry. The Department of the Interior supports the goals of H.R. 1314, although we note that the activities called for are within the scope of existing Department of the Interior authorities.

The USGS is responsible for conducting research and collecting data on a wide variety of non-fuel mineral resources, including rare earths. We conduct research to understand the geologic processes that concentrated known mineral resources at specific localities in the Earth's crust, and to estimate quantities, qualities, and areas of undiscovered mineral resources.

We collect, analyze, and disseminate data information on current production and consumption for about 100 mineral commodities, both domestically and internationally. This full spectrum of mineral resource science allows for a comprehensive understanding of the complete life cycle of mineral resources and materials—resource formation, discovery, production, consumption, use, recycling and reuse. It allows for an understanding of environmental issues of concern throughout the life cycle.

Global demand for rare earths is estimated to be increasing at a rate of about 8 percent per year due to increasing applications and consumer products—computers, automobiles, aircraft, and other advanced technology products. Production of rare earths is currently highly concentrated in China, which is restricting its exports of rare earth element raw materials.

The ability of the rest of the world to replace supply from China depends on the quality of known global rare earth element resources and the degree to which those resources have been explored and evaluated. The USGS has recently completed an inventory of known domestic rare earth reserves and resources. This study reviews current U.S. consumption and imports of rare earths, current knowledge of domestic resources, and possibilities for future domestic production. The report also includes an overview of known global rare earth resources and discusses the reliability of alternative foreign sources.

The USGS stands ready to fulfill its role as the sole Federal provider of unbiased mineral resource research on known rare earth resources, assessment of undiscovered rare earth resources, and information on domestic and global production and consumption for use in analyzing the global supply chain.

Thank you, Mr. Chairman, for the opportunity to present the views of the Department. I will be happy to answer any questions you or the other Members may have.

[The prepared statement of Mr. Doebrich follows:]

Statement of Jeff L. Doebrich, Acting Mineral Resources Program Coordinator, U.S. Geological Survey, U.S. Department of the Interior, on H.R. 1314

Good morning, Mr. Chairman and Members of the Subcommittee. Thank you for the opportunity to appear before you today to discuss H.R. 1314, directing the Secretary of the Interior, acting through the Director of the U.S. Geological Survey (USGS), to conduct a global assessment of rare earth element resources. The Department of the Interior supports the goals of this bill, although we note that the activities called for in H.R. 1314 are within the scope of existing Department of the Interior authorities.

The USGS is responsible for conducting research and collecting data on a wide variety of nonfuel mineral resources, including rare earths (RE). Research is conducted to understand the geologic processes that concentrated known mineral resources at specific localities in the Earth's crust and to estimate (or assess) quantities, qualities, and areas of undiscovered mineral resources, or potential future supply. USGS scientists also conduct research on the interactions of mineral resources with the environment, both natural and as a result of resource extraction, to better predict the degree of impact that resource development may have on human and ecosystem health. USGS mineral commodity specialists collect, analyze, and disseminate data and information that document current production and consumption for about 100 mineral commodities, both domestically and internationally for 180 countries. This full spectrum of mineral resource science allows for a comprehensive understanding of the complete life cycle of mineral resources and materials—resource formation, discovery, production, consumption, use, recycling, and reuse—and allows for an understanding of environmental issues of concern throughout the life cycle.

Global demand for RE is estimated to be increasing at a rate of about 8 percent per year due to increasing applications in consumer products, computers, automobiles, aircraft, and other advanced technology products. Much of this demand growth is driven by new technologies that increase energy efficiency and decrease reliance on fossil fuels. Production of RE is currently highly concentrated in China, which is restricting its exports of rare-earth-element raw materials; China currently produces 97 percent of the world's rare earths, although 20 years ago the United States was the world's leading rare-earths producer. The ability of the rest of the world to replace supply from China depends on the quality of known global rare earth element resources and the degree to which those resources have been explored and evaluated.

To begin the process of understanding potential sources of RE supply, the USGS has recently completed an inventory of known domestic RE reserves and resources (Long and others, 2010). This study restates basic geologic facts about RE relevant to assessing domestic security of supply and reviews current U.S. consumption and imports of RE, current knowledge of domestic resources, and possibilities for future domestic production. The report also includes an overview of known global RE resources and discusses the reliability of alternative foreign sources of RE.

The logical next steps are to (1) update a global inventory of rare earth resources published by the USGS in 2002 (Orris and Grauch, 2002), (2) review principal RE deposits outside of China and evaluate their geologic, economic, and development potential, and (3) conduct a global assessment of undiscovered RE resources. H.R. 1314, the RARE Act of 2011, outlines a reasonable approach to properly assess the global endowment of RE resources, to identify potential future supplies of RE resources, and to better understand future potential sources of RE needed for United States industry..

The USGS maintains a workforce of geoscientists (geologists, geochemist, geophysicists, and resource specialists) with expertise in critical minerals and materials, including RE. The USGS continuously collects, analyzes, and disseminates data and information on domestic and global RE reserves and resources, production, consumption, and use. This information is published annually in the USGS Mineral Commodity Summaries (USGS, 2011) and includes a description of current events, trends, and issues related to RE supply and demand.

The USGS stands ready to fulfill its role as the sole federal provider of unbiased mineral resource research on known RE resources, assessment of undiscovered RE resources, and information on domestic and global production and consumption of RE resources for use in global RE supply chain analysis. We note, however, that the activities called for in H.R. 1314 are already authorized by existing authorities. Any study conducted to fulfill the objectives of the bill will require substantial resources and would need to compete with other Administration priorities.

Thank you, Mr. Chairman, for the opportunity to present the views of the Department on H.R. 1314. I will be happy to answer any questions you or the other Members may have.

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USGS, 2011, Mineral Commodity Summaries 2011, p. 128–129 http://minerals.usgs.gov/minerals/pubs/commodity/rare_earths/mcs-2011-raree.pdf)

Statement submitted for the record by the U.S. Department of the Interior on H.R. 2011, National Strategic and Critical Minerals Act of 2011

Thank you for inviting the Department of the Interior to testify on H.R. 2011, the National Strategic and Critical Minerals Act of 2011. The Department recognizes the need for a coherent policy concerning minerals essential to manufacturing, economic well-being and security, and economic competitiveness. Because H.R. 2011 was just introduced on May 26, 2011, the Department has not had time to conduct an in-depth analysis of the proposal, but we appreciate the opportunity to provide testimony at this time. Consequently, we offer a more general discussion of this important issue at this time and look forward to working further with the Committee on H.R. 2011.

Background

The Department of the Interior is our nation's largest landowner with jurisdiction over 20 percent of the land mass of the United States and 1.75 billion acres of the Outer Continental Shelf. The BLM administers over 245 million surface acres of public land–more than any other Federal agency in the United States. Most of this land is located in the 12 Western states, including Alaska. The BLM also manages 700 million acres of sub-surface mineral estate throughout the nation. The public lands produce commodities that are key to the Nation's economy, and can help provide economic stability and growth for local and regional communities.

The development of energy and mineral resources are among the multiple uses for which the BLM manages lands and resources for the benefit of the public. The BLM manages mineral development under a number of different authorities including the Federal Land Policy and Management Act, the Mineral Leasing Act, the Materials Act of 1947, and the General Mining Act of 1872. Each of these authorities along with BLM regulations and guidance provide a legal framework for the development of minerals.

The Administration supports the development of federally owned natural resources in an environmentally protective manner that ensures a fair return to the taxpayer. Therefore, the 2012 Budget includes a proposal to improve the return to taxpayers by instituting a leasing process under the Mineral Leasing Act of 1920 for new leases on certain minerals (gold, silver, lead, zinc, copper, uranium, and molybdenum) currently covered by the General Mining Law of 1872. The Budget also includes a proposal to reduce the environmental impacts of coal and hardrock mining by dedicating and prioritizing funds to reclaim abandoned mines on Federal and non-Federal lands.

The USGS is responsible for conducting research and collecting data on a wide variety of nonfuel mineral resources, including rare earths (RE). Research is conducted to understand the geologic processes that concentrated known mineral resources at specific localities in the Earth's crust and to estimate (or assess) quantities, qualities, and areas of undiscovered mineral resources, or potential future supply. USGS scientists also conduct research on the interactions of mineral resources with the environment, both natural and as a result of resource extraction, to better predict the degree of impact that resource development may have on human and ecosystem health. USGS mineral commodity specialists collect, analyze, and disseminate data and information that document current production and consumption for about 100 mineral commodities, both domestically and internationally for 180 countries. This full spectrum of mineral resource science allows for a comprehensive understanding of the complete life cycle of mineral resources and materials—resource formation, discovery, production, consumption, use, recycling, and

reuse—and allows for an understanding of environmental issues of concern throughout the life cycle.

H.R. 2011

H.R. 2011 requires the Secretary of the Interior—through the BLM and the USGS—to assess the capability of the United States to meet the demands for minerals essential to manufacturing competitiveness and economic and national security. It requires the Secretary to produce a report to Congress that includes an assessment of the non-fossil-fuel mineral potential of lands under the jurisdiction of the BLM and the U.S. Forest Service within 180 days of enactment. The report also must identify anticipated mineral requirements, current sources of these minerals, implications of shortages, timelines for mineral development projects on public lands, and the cost of litigation. In addition, the report must include an assessment of the Federal workforce and its ability to meet the challenges of the critical minerals issue.

H.R. 2011 requires far-reaching analysis of data spanning the jurisdictions of the Departments of the Interior, Agriculture, Defense, Commerce, and Justice as well as the Office of Personnel Management. As introduced, H.R. 2011 would entail much more than the development of a report, likely requiring the development and implementation of data tracking systems and a commitment of staff resources to gather, input, analyze, and update the data. The administrative time and cost of this work would likely exceed the 180 days and $1 million authorized by the legislation. H.R. 2011 identifies some important goals, and we appreciate the opportunity to work with the Committee and the other affected agencies to take into account these resource considerations. We also would like to work with the Committee on language clarifying the minerals under consideration.

Conclusion

Thank you for the opportunity to testify here today and I would be glad to take your questions.

Mr. LAMBORN. Thank you so much.

I would like to hear now from Commissioner Sullivan.

STATEMENT OF HON. DAN SULLIVAN, COMMISSIONER, ALASKA DEPARTMENT OF NATURAL RESOURCES

Mr. SULLIVAN. Good morning and thank you, Mr. Chairman. Representative Holt, thank you as well for the opportunity to testify before the Committee again. I have never been referred to as a recycled witness, but I think I will take the compliment. So thank you for that.

Mr. HOLT. We are happy to have you.

Mr. SULLIVAN. OK.

Mr. HOLT. You are a good witness.

Mr. SULLIVAN. My name is Dan Sullivan. I am the Alaska Commissioner of the Department of Natural Resources. DNR manages one of the largest portfolios of oil, gas, minerals, renewable land and water in the world. I am also a former Attorney General of the State of Alaska and a former U.S. Assistant Secretary of State with responsibilities over global energy, economic and finance issues.

Mr. Chairman, I have submitted extensive written testimony, including this pamphlet from the Department of Natural Resources. Hopefully, you have had the opportunity to see this and we hope that the Committee finds this useful.

In many ways, my testimony this morning will cover themes that are similar to my testimony yesterday on oil- and gas-related issues in Alaska.

First, our country faces significant security challenges due to our lack of production and processing of certain strategic minerals, including rare earth elements. Second, Alaska can and should be an

important component of a national policy to address our strategic vulnerabilities. Why? Because we have world-class deposits of many of these minerals. Pages 2, 3 and 7 of my written testimony, and the table in the pamphlet, summarize resource estimates of Alaska's critical strategic minerals. We rank in the top ten in the world with regard to many of these minerals in terms of our reserves.

Third, Alaska is undertaking a comprehensive strategy to more fully assess, produce, and hopefully process these minerals. Alaska Governor Sean Parnell highlighted this in his State of the State speech this last January and our efforts include a statewide assessment of rare earths and other strategic minerals, which we have already begun significant infrastructure investments and significant permitting reform.

Fourth, we are doing this while maintaining very strong protections for our environment, which is a hallmark of responsible resource development in Alaska. Fifth and finally, we are seeking a partnership with the Federal Government to support and enhance our efforts. On this last point, from Alaska's view, we are off to a constructive start. Governor Parnell has written President Obama and Secretary Chu on the importance of working together on these issues. I and other state officials in Alaska have had productive discussions with White House officials and other Administration officials.

But time is of the essence. Working together, we need to take concerted action on a number of fronts. First, we would welcome additional support on our statewide assessment. The State of Alaska and the USGS have a long history of working very well together and we would welcome additional support, input, and coordination on our statewide assessment efforts.

Second, and this is critical, Mr. Chairman, we must reform our Federal permitting system, which ranks at the bottom of major mining economies for timely processing. Permitting a major mine project in the U.S. takes on average seven to ten years. In Australia, that number is about one to two years. In Alaska, we had a particularly egregious case with the Kensington Gold Mine, which took almost 20 years to permit.

Third, we need access to highly perspective Federal lands, once they are viewed as such, that are currently off limits to mining. Fourth, we must work to incentivize additional research and processing capability within the United States. Simply mining minerals in the U.S. only to have them processed overseas still leaves our country vulnerable and foregoes important value-added economic benefits.

The bills that are the subject of today's hearing, the RARE Act of 2011 and the Critical Minerals Policy Act as well as Senator Mikulski's Senate bill 1113, all focus in one form or another on these issues, which is why the State of Alaska supports these bills. But we once again stress the urgency of the situation and need for coordinated action.

Thank you. I look forward to your questions.

[The prepared statement of Mr. Sullivan follows:]

Statement of The Honorable Dan Sullivan, Commissioner, Department of Natural Resources, State of Alaska

I. Introduction: America's Strategic Mineral Challenge

Chairman Lamborn, Ranking Member Holt, and members of the House Subcommittee on Energy and Mineral Resources, on behalf of Governor Sean Parnell, the State of Alaska welcomes this opportunity to testify about issues of such importance to Alaska and our country. We are eager to share with the U.S. Congress and the Obama Administration that Alaska has the potential to deliver domestic sources of strategic minerals to the nation. More specifically, we want to demonstrate to this committee and the rest of your colleagues in Congress the vital role Alaska can play in enhancing America's long-term security, expanding American employment, and growing the economy by delivering domestically produced and processed strategic minerals to the U.S. marketplace.

Today's testimony includes a pamphlet from the State of Alaska on an overview on rare earth elements and Alaska's significant potential regarding these and other strategic minerals.

Biographical Information

Before getting into substantive matters, I would like to briefly mention my professional background as it pertains to this testimony. I have been serving as commissioner of the Alaska Department of Natural Resources (DNR), a state agency of over 1,100 personnel, since December 2010. Under the Alaska Constitution, my primary responsibility as the DNR commissioner is to maximize the development of the state's resources in a manner that furthers the public interest. DNR manages one of the largest portfolios of oil, gas, minerals, renewable, land, and water resources in the world, including approximately 100 million acres of uplands, 60 million acres of tidelands, shore lands, and submerged lands, and 40,000 miles of coastline.

Prior to my appointment as DNR commissioner, I served as the Alaska Attorney General and as the U.S. Assistant Secretary of State for Economic, Energy, and Business Affairs under Secretary of State Condoleezza Rice. I am also a United States Marine, having served on active duty and in the reserves as an infantry officer since 1993.

II. Alaska is a Storehouse of America's Strategic Mineral Wealth

Alaska also has much to offer the nation in the effort to secure a stable domestic supply of minerals. In 2010, the value of Alaska's total mineral ore exports was $1.3 billion, with exports to China, Japan, Canada, Korea, and Spain. Over $200 million was spent by companies exploring in Alaska. This production is the tip of the iceberg; estimates of Alaska's mineral wealth potential are staggering:

- *Coal:* 17% of the world's coal; *2nd most in the world*
- *Copper:* 6% of the world's copper; *3rd most in the world*
- *Lead:* 2% of the world's lead; *6th most in the world*
- *Gold*: 3% of the world's gold; *7th most in the world*
- *Zinc*: 3% of the world's zinc; *8th most in the world*
- *Silver*: 2% of the world's silver; *8th most in the world*
- *Rare earth elements*: over 150 occurrences

Despite this enormous resource potential, Alaska is the most under-explored region for mineral deposits in North America, and is considered highly prospective with regard to strategic and critical minerals, including Rare Earth Elements (REEs) needed for domestic use.

III. Alaska is Well Positioned to Meet the Nation's Strategic Mineral Challenges

Strategic minerals, such as Rare Earth Elements, are becoming increasingly critical to our nation's economic well-being and security. China possesses an estimated 48% of the world's proven resources of REEs and is the dominant global supplier with nearly 97% of the world's production. Recent curtailment of REE exports from China and reliance on the Chinese industry for processing and manufacturing critical REE-reliant products has heightened awareness of the fragility of the supply-demand chain for REEs worldwide. Given China's virtual control of the market, it is clearly in our nation's best interest to establish a stable domestic supply of REEs.

Alaska can become a new, stable source of REEs for the nation. Alaska is by far the most under-explored U.S. state for mineral deposits and is considered highly prospective with regard to strategic and critical minerals needed for domestic use. Our vast land base is thought to contain at least 70 known areas with documented potential to host REE deposits and over 40 million acres of high mineral potential lands.

Alaska contains one of the most significant REE prospects in the U.S.: the Bokan Mountain/Dotson Ridge property. The property is currently ranked 15th in North America for total tonnage of contained rare earth metal oxides. But unlike other U.S. deposits, Bokan Mountain is enriched in yttrium, dysprosium, and critical Heavy REEs, which are essential for the production of permanent magnets in some of our country's most important industries and products.

IV. The State of Alaska is Taking a Leadership Role in Facilitating Domestic Production of Strategic Minerals

In Alaska Governor Sean Parnell's State of the State Address in January 2011, he stated:

> If we want our economy to become even more dynamic, we must also look to our untapped resources. [R]are earth minerals are of increasing importance in the world economy. These rare earth elements are used in almost every piece of electronic equipment you can think of; flat screen TVs, iPods, cell phones, aircraft radar systems, and much, much more. Today, our Pacific Rim neighbor, China, controls 97 percent of the world market for these rare earth elements. Recently, China imposed trade quotas and increased tariffs on these precious commodities. And, China announced it is substantially reducing access to these rare earth elements. These policies will cost Americans more of our hard-earned money and jeopardize national security. We cannot afford to rely on foreign sources to meet our nation's demand. And you know what; there may be no reason to. Alaska is a storehouse of rare earth minerals. Let's explore them. That's why this year we should work together to fund a strategic assessment of these minerals to determine, once again, how Alaska can help meet America's needs.

As the Governor's remarks indicate, the State of Alaska is focused on advancing Alaska's capacity to develop our strategic minerals for the nation's benefit. We are undertaking the following interrelated actions:

First, the state is undertaking a statewide assessment of REEs and other strategic minerals potential to better understand the extent of REE resources in Alaska. The state will gather data and improve industry access to these data to encourage and facilitate private-sector investment in Alaska's REE exploration and development. The Alaska state legislature recently appropriated, pursuant to Governor Parnell's request, $500,000 to begin a statewide survey of state, federal, and native lands. We have already begun Phase I of this strategic minerals assessment.

Second, the state is providing support for the development of known or highly prospective REE and other strategic mineral occurrences throughout Alaska by exploring potential infrastructure improvements that could spur development, such as roads, port facilities, and power sources. The state legislature recently appropriated approximately $75 million in bonding authority for infrastructure projects that will advance mining development and roughly $1.5 million for studies to construct a road to the highly prospective Ambler mining district. State economic development agencies also are actively engaged with the private sector on developing long-term financing for important resource-related infrastructure projects.

Third, the state is improving the structure and efficiency of its permitting process in order to expedite mineral development, including development of REEs and other strategic minerals. The state has gone to great lengths to improve its permitting process for mineral development. The state's large project permitting team is viewed as a model for signal point of contact coordination for efficient permitting. Nevertheless, there are still many permitting challenges, especially with the interplay between state, federal, and local regulatory processes. The state is therefore taking an aggressive approach to working with all levels of government to further refine and streamline permitting. The Governor's budget request of more than $4 million for permitting reform was recently approved by the state legislature.

Fourth, the state is deepening its partnership and cooperation with stakeholders, including the federal government, local governments, Native corporations, and other potential new entrants to encourage domestic exploration, development, and processing of REEs and other strategic minerals. Improving these relationships is imperative for the country, not just Alaska. In Alaska, REEs are likely to be found on state, federal, and private (Native) lands, thus establishing a strong partnership with these entities will be critical to the initiative's success. The state is planning with the University of Alaska an important conference that will bring together all stakeholders to discuss REEs and strategic minerals.

Finally, the state needs to attract new investment and needs new markets for its abundant mineral resources. To achieve this goal, the state is promoting its mineral resource wealth to the rest of the country and overseas markets by discussing, for example, our resource base, our favorable fiscal structure, our robust environmental

protections, and how we partner with industry to assist in the exploration and development of strategic mineral resources.

V. Alaska Supports Federal Efforts to Enhance Domestic Development of Strategic Minerals

The federal government will play a critical role in the development and processing of strategic minerals in Alaska and other states. The State of Alaska has been seeking a close working relationship with the federal government on these issues. In particular, Governor Parnell has recently sent letters to President Obama and Secretary Chu to strengthen the state's partnership with the federal government to facilitate the development of REEs and strategic materials in Alaska. In his letters, the Governor made the following requests:

- that the Administration direct the United States Geological Survey partner with the state to conduct an inventory of federal lands in Alaska
- that the Administration improve federal permitting by having high ranking mangers from federal agencies with decision making authority coordinate early and often with each other, permit applicants, and state agencies
- that the Administration use the University of Alaska's Arctic Region Supercomputing Center for REE research and development
- that Congress review the merits of amending existing federal statutes to allow the Department of Energy to provide loan guarantees, grants, and tax credits for the general mining and processing of REEs.

Alaska therefore supports federal legislation that will increase domestic production and processing of strategic minerals. The State of Alaska appreciates the opportunity to provide comment on the Critical Minerals Policy Act of 2011 and the Rare Earths Act of 2011 and endorses the underlying principles of these Acts. The state supports these bills, and Senator Murkowski's Senate Bill 1113, which seek to promote a stable supply of minerals to maintain our nation's economic well-being, security, and manufacturing, industrial, and technological capabilities.

Increase Federal Mineral Assessments

The state supports the Critical Minerals Policy Act of 2011 and the Rare Earths Act of 2011 requirement that the Department of the Interior conduct a comprehensive assessment of the nation's strategic minerals. Federal assessment of mineral commodities on federally managed land has been significantly reduced to date and no complete resource assessment of federal lands in Alaska has been completed. For example, the BLM disbanded their solid minerals group in Alaska in 2007 despite the fact that Alaska has 40 million acres of high mineral potential state and private land.

Nonetheless, the State of Alaska lacks sufficient information to fully assess the mineral potential in most areas of Alaska, which is why the state is preparing a first-level study of our 70 known areas of REEs. The state has already spent over $10 million on mineral assessment work on some of these lands, including 10.6 million acres of high resolution geophysics and 5.2 million acres of geologic mapping, and as noted above will be spending another $500,000 on a new assessment of REEs. Any federal assistance to further this effort will advance the country's ability to develop a secure and domestic supply of strategic minerals.

Enhance Access to Federal Lands

Even preliminary assessments in Alaska indicate that many of Alaska's strategic mineral resources will be found on federal lands. Indeed, Bokan Mountain is one prospect on federal lands. Therefore, it is important to increase the availability of access to federal lands for mineral development when assessments of such lands indicate high prospectivity.

In addition, as a part of the assessment, the federal government should review why these lands were withdrawn and provide a determination of whether the withdrawal is still appropriate. This is particularly important in Alaska because approximately 165.4 million acres of the total 215 million federally owned acres in Alaska have been withdrawn from mineral entry (or 82%).

Undertake Federal Permitting Reform

The state also applauds the Critical Minerals Policy Act of 2011 call for the federal government to improve coordination efforts among federal agencies and to "minimize duplication, needless paperwork, and delays in the administration of Federal and State laws and regulations, and issuance of permits and authorizations necessary to explore, develop, and produce minerals and construct and operate mineral-related facilities."

Changes to the permitting system are particularly needed because the U.S. has received low rankings for difficult permitting of mineral development. The federal

mine permitting system in the United States ranks as least efficient or timely among 25 mining countries, requiring an average time frame of seven to ten years to deliver a permit. This compares to Australia where permits are often issued in one to two years. A particularly egregious example of federal permitting delays is the Kensington Gold Mine in Southeast Alaska, which took almost 20 years to permit. The State of Alaska successfully intervened in litigation to help secure the necessary permits for this mine. The Kensington Mine is now in operation, producing significant quantities of gold, and employing hundreds of Alaskans.

Alaska has gone to great lengths to make its permitting system one of the most robust and efficient in the nation, but we can only improve so much without similar improvements the federal side. We have initiated measures to reform and streamline our permitting process, and continue to seek improvements and efficiencies, and we are partnering with new entrants to encourage private sector exploration, including at the Bokan Mountain REE deposit.

For these reasons, the state encourages federal efforts at permitting reform because permitting uncertainty and delay are stifling development. The State of Alaska has developed a coordinated permitting system that has evolved and worked well over the last 20 years. Our system ensures that all state agencies are working well together throughout the lengthy and complex permitting processes for all large resource development projects in the state. The federal agencies have no analogous system. We therefore recommend that the federal agencies adopt a coordination model similar to Alaska's. A strong federal coordinator would not only ensure that the federal agencies are working well together during permitting, but would help establish an experienced permitting team within the federal agencies. Strong coordination would also help the federal agencies develop new procedures that could make permitting more efficient, such as better synchronization between the EIS process and ACOE 404 permitting.

Establish Incentives for Domestic Processing and Research

Even if the United States increases domestic production of strategic minerals and REEs, we still lack a sufficient industrial base for processing these minerals. For example, if U.S. REE production were to begin next year, the processing of these minerals would have to take place in China. Thus, it is critical to develop domestic processing capability in conjunction with the production of strategic minerals and REEs.

Domestic processing capabilities will go hand-in-hand with a renewed effort expanding America's research capability. The Department of Energy's world-class laboratories could expand their focus on the development and domestic processing of these strategic minerals in partnership with universities and the private sector. Given how vulnerable we are to a shortage of these minerals and critical importance to our national security and economy, a renewed federal research effort on strategic minerals and REEs is appropriate.

Mr. LAMBORN. Thank you. Mr. Duclos.

STATEMENT OF STEVEN DUCLOS, CHIEF SCIENTIST AND MANAGER, MATERIALS SUSTAINABILITY, GENERAL ELECTRIC, TESTIFYING ON BEHALF OF NATIONAL ASSOCIATION OF MANUFACTURERS

Mr. DUCLOS. Chairman Lamborn, Ranking Member Holt, and members of the Subcommittee, thank you for the opportunity to testify before you today about rare earth and critical minerals.

My name is Steven Duclos, and as Chief Scientist and Manager of Material Sustainability at GE Global Research, it is my job to identify ways that our businesses can manage our minerals in a sustainable way. GE is a board member of the National Association of Manufacturers, NAM, and I am pleased to testify on their behalf today.

The NAM is the nation's largest manufacturing trade association, representing manufacturers in every industrial sector and in all 50 states. Manufacturing has a presence in every congressional district, providing good, high-paying jobs. The United States

manufacturing economy produces 1.6 trillion in value each year or 11.2 percent of GDP. It employs nearly 12 million Americans.

Minerals play a fundamental role in manufacturing. Manufacturers use critical minerals such as the rare earths to produce many products. As an example, GE uses at least 70 of the first 83 elements on the Periodic Table, including rare earth minerals in production of energy efficient florescent lighting, in permanent magnets for our most advanced wind turbines, in compressor motors for our oil and gas business, in medical imaging technologies, and in coatings for aircraft engines and power generation turbines.

Chairman Lamborn, I commend you for convening this hearing today to discuss the issue of rare earth and other critical minerals. I would like to share with you the NAM's policy in regards to rare earths minerals and outline a series of recommendations for how the Federal Government can strengthen its support for industry in this area. The NAM's core policy is that U.S. manufacturers require access to basic inputs in the manufacturing process in order to become and remain competitive in the global economy.

Foremost, the NAM believes that any solution to the critical minerals issue needs to be comprehensive and take into consideration the following multiple efforts that are necessary to resolve the shortage of these minerals. First, the Federal Government should play a vital role in strengthening the domestic rare earths minerals supply chain. Such a domestic supply chain can make U.S. manufacturers stronger and more competitive. For example, manufacturers are supportive of legislation that allow for the reopening of mines and processing plants in the United States. We believe that this is a great first step.

Second, there needs to be support of a workforce that can carry out this mining and processing. A legislative effort should include workforce assessment, curriculum development, and worker training. Without this workforce, the U.S. will not be able to mine these minerals in a safe and environmentally sound manner.

Third, comprehensive legislation needs to address the issue of technology development, particularly for the heavy rare earth elements. These elements currently are not mined in sufficient quantities domestically to meet growing demands. In those cases where affordable alternative materials may be available, an important solution for these heavy rare earths is to provide manufacturers incentives to develop technologies that either reduce or eliminate the use of these elements.

The Federal Government can help by enabling public/private collaborations that provide the materials understanding and resources to develop these technologies. This also includes voluntary development of manufacturing technologies that more efficiently use these materials.

Fourth, is the development of recycling technologies that extract these elements from both end-of-life products and manufacturing yield loss. This includes developing technologies that assure the parks and systems that contain these minerals have as long a life as possible.

Mr. Chairman, these are the basic principals, which we the NAM believe are necessary to address the shortage of rare earth minerals and other critical elements. However, it is imperative to note

that each element is different and some problems are easier to solve than others. Typically, a unique solution will be needed for each element and each use of that element. Therefore, comprehensive legislation must also take into consideration and propose solutions that are applicable to real-life manufacturing and system design.

In regards to H.R. 1314 and H.R. 2011, Chairman Lamborn and Congressman Johnson, we thank you for your efforts in introducing these measures. We believe that it is important to have legislation by Congress that mandates a comprehensive approach that takes into account domestic mining and processing of these minerals, strengthening of the workforce, government incentives for creating alternative manufacturing and materials technologies, and recycling of these materials so that we can truly address the current issues with rare earth minerals.

I thank you for the opportunity to describe the NAM's policy on rare earth and critical materials. I look forward to your questions.

[The prepared statement of Mr. Duclos follows:]

Statement of Dr. Steve Duclos, Chief Scientist and Manager of Material Sustainability, General Electric Global Research, on behalf of the National Association of Manufacturers, on H.R. 2011 and H.R. 1314

Chairman Lamborn, Ranking Member Holt and members of the Subcommittee on Energy and Mineral Resources, thank you for the opportunity to testify before you today about rare earth and critical minerals.

My name is Dr. Steven Duclos, and I am the Chief Scientist and Manager of Material Sustainability at General Electric Global Research. At GE, we have more than 35,000 scientists and engineers working in the U.S. and around the globe, with extensive expertise in materials development, system design, and manufacturing. As Chief Scientist and Manager of Material Sustainability at GE Global Research, it's my job to understand the latest trends in materials and to help identify and support new R&D projects with our businesses to manage our needs in a sustainable way.

GE is a diversified global infrastructure, finance, and media company that provides a wide array of products to meet the world's essential needs. From energy and water to transportation and healthcare, we are driving advanced technology and product solutions in key industries central to providing a cleaner, more sustainable future for our nation and the world.

GE is also a board member of the National Association of Manufacturers (NAM) and is pleased to testify on their behalf today. The NAM is the nation's largest manufacturing trade association, representing manufacturers in every industrial sector and in all 50 states. Manufacturing has a presence in every single congressional district providing good, high-paying jobs. The United States is the world's manufacturing economy. It produces $1.6 trillion in value each year or 11.2 percent of GDP, and employs nearly 12 million Americans working directly in manufacturing.

Manufacturers use minerals, in some cases, rare earth minerals, to create a number of products. For instance, GE uses the following rare earth minerals in production of the following products:

A) GE Lighting utilizes Cerium, Terbium, and Europium in synthesizing efficient phosphors for fluorescent lamp products, which are critical in the Department of Energy's transition from inefficient incandescent lamps.
B) GE Energy uses Neodymium, Samarium, Dysprosium, and Terbium in permanent magnets for compact and efficient generators in GE's most advanced 2.5 MW wind turbines.
C) GE also uses permanent magnets in technology prototypes for traction motors for our hybrid locomotives, high-speed motors and generators for aviation applications, high speed motors for turbo-expanders, high power density motors for PHEVs and EVs, ultra high-efficiency industrial motors, as well as compressor motors for GE Oil and Gas business.
D) GE Healthcare uses rare earth materials for scintillators in both Computed Tomography (CT scan) and Positron Emission Tomography (PET scan) health imaging technologies.
E) GE Aviation uses small quantities of rare earth permanent magnet materials for defense technologies in guidance systems.

F) Small amounts of rare earths are used in materials and coatings in aircraft engines and power generation turbines.

Minerals play an essential part in manufacturing. As an example, GE uses at least 70 of the first 83 elements listed in the Periodic Table of Elements. GE also spends $40 billion annually on materials, with 10% devoted to direct purchase of metals and alloys. Because materials are so fundamental to everything manufacturers do, we are constantly watching, evaluating and anticipating supply changes with respect to materials that are vital to the manufacturing process.

Chairman Lamborn, I commend you for convening this hearing today to discuss the issue of rare earth and other critical minerals. What I would like to do now is to share with you the NAM's policy in regards to rare earth minerals, as well as outline a series of recommendations for how the federal government can strengthen its support of the industry in this area.

The NAM's core policy is that U.S. manufacturers require access to basic inputs to the manufacturing process in order to become and remain competitive in the global economy. The NAM opposes government policies and practices that unfairly limit the availability and raise the cost of such inputs, thereby reducing the competitiveness of U.S. manufacturers. With that said, the NAM believes that first and foremost, any solution needs to be comprehensive and to take into consideration the multiple efforts that are necessary to resolve the shortage of these minerals in the manufacturing supply chain.

As you know, the United States was at one point a global leader in providing rare earth minerals. However, as the mining and processing of these minerals were economically intensive, U.S. mining and processing has ceased. However, over the past years demand for some of these minerals has continued to increase. Current mining and processing will not be able to keep up with this demand. In addition, a shortage of these minerals can increase the cost of energy for manufacturers as they are used in refining petroleum as well as in renewable energy products. Therefore, the U.S. should resume its mining and processing of these minerals.

Strengthening Domestic Supply Chain and Workforce

First, the federal government should play a vital role in strengthening the domestic rare earth minerals supply chain. By strengthening our domestic supplies we will have a more diversified supply chain for these minerals and this will help make U.S. manufacturers stronger and more competitive. Manufacturers are supportive of legislation that increases domestic supply. For example, legislation that re-opens mines and processing plants in the United States would be an excellent first step.

Second, there needs to be support for a workforce that can carry out mining and processing. Therefore, a legislative effort should include workforce assessment, curriculum development and worker training. This is a vital element for re-opening mining and processing of any critical minerals, including rare earth minerals. Without the necessary workforce, the U.S. will not be able to mine these minerals in a safe and environmentally sound manner. Therefore, in order to truly secure manufacturers' access to these vital minerals, the U.S. needs to provide a domestic source of mining and processing of these minerals.

Alternative Technologies

Furthermore, comprehensive legislation needs to address the issue of heavy rare earth elements. These elements cannot currently be mined in sufficient abundance domestically to meet manufacturers' growing demands. An important solution for the shortage of these heavy rare earth minerals, in those particular cases where affordable alternative materials may be available, is to provide manufacturers incentives to develop technology that either reduces or eliminates the use of these elements. This includes the voluntary development of manufacturing technologies that more efficiently use these materials.

While there are cases where the properties imparted by the element are uniquely suitable to a particular application, there are examples where a manufacturer is able to invent alternative materials or use already existing alternate materials to minimize mineral shortage risks. Manufacturers may be able to overcome the shortage of these minerals by using alternatives that will provide them more flexibility in designing their products. However, pursuing this path is not easy and presents significant challenges that need to be addressed. As such, the federal government can help by enabling public-private collaborations that provide both the materials understanding and the resources to attempt higher risk approaches. Both are required to increase manufacturers' chances of success in minimizing the use of those heavy rare earth elements.

Recycling Efforts

Another approach to minimizing the use of at-risk elements over the long term is to develop recycling technologies that extract these elements from both end-of-life products and manufacturing yield loss. This includes developing technologies that assure that parts and systems that contain these minerals have as long a life as possible. For instance, designing a product that can be serviced will reduce the need for replacing parts that will use additional materials. The basic understanding of those practices and designs that limit the life of products can be critical to extending the useful life of parts, particularly those exposed to extreme conditions. It is these parts that tend to be made of the most sophisticated materials, oftentimes containing scarce raw materials.

Mr. Chairman, these are the basic principles which we, the NAM, believe are necessary to address the shortage of rare earth minerals and other critical elements. However, it is imperative to note that each element is different and some problems are easier to solve than others—typically a unique solution will be needed for each element and each use of that element. Therefore, a comprehensive legislation must also take into consideration the varying degrees of manufacturing, and propose solutions that are applicable to real-life manufacturing and system design.

Comments on H.R. 1314 and H.R. 2011

In regards to H.R. 2011 and H.R. 1314, we thank you for your efforts in introducing these measures. As per my testimony today, manufacturers rely on these minerals for the creation of a number of products and sources of energy. Therefore, we welcome Congressional actions that not just draw attention to the issue, but attempt to resolve it was well.

We believe that it is important to have some form of legislation by Congress that mandates a solution that is comprehensive and incorporates those solutions highlighted above. It is only through a comprehensive solution that takes into account: (1) the domestic mining and processing of these minerals; (2) strengthening of the workforce; (3) government incentives for creating alternative manufacturing and materials technologies; and (4) recycling of these minerals that we can truly address this current problem with rare earth minerals.

Mr. LAMBORN. Thank you. Mr. Engdahl.

STATEMENT OF JAMES B. ENGDAHL, PRESIDENT AND CHIEF EXECUTIVE OFFICER, GREAT WESTERN MINERALS GROUP

Mr. ENGDAHL. Chairman Lamborn, Ranking Member Holt, distinguished members of the Subcommittee, thank you for the opportunity to testify today. As President and CEO of the Great Western Minerals Group, I am pleased to participate in this important legislative hearing on H.R. 2011 and H.R. 1314.

These bills offer important elements of a comprehensive solution to challenges in developing a complete, reliable, and competitive rare earth supply chain in the United States. I am particularly pleased to present both an international perspective related to Great Western's rare earth projects and a domestic perspective related to Formation Metals' Idaho Cobalt Project.

The Great Western Minerals Group is a rare earths processor pursuing a vertically integrated business model. Focused primarily on the permanent magnet industry, GWMG owns two rare earth alloy manufacturing companies, Great Western Technologies in Troy, Michigan and Less Common Metals in Birkenhead, England. In addition to permanent magnet alloys, these manufacturers can produce a variety of specialty alloys for the battery, automotive, aerospace, defense, and clean energy industries.

As part of our vertical integration, we also hold interests in several rare earth exploration and development properties in the United States, Canada, and South Africa. I am also a member of

the Board of Directors of Formation Metals, a company currently developing the United States' only primary cobalt project in Idaho.

As highlighted in the legislation under discussion today, an understanding of availability of critical minerals is a key starting point for their successful development. With rare earth projects coming online outside China, including Great Western Steenkampskraal Mine in South Africa and shortly thereafter Hoidas Lake in Saskatchewan, Canada, it is like that the supply of light rare earths, such as lanthanum and cerium will soon ease current shortages.

However, the prospects for light rare earths such as neodymium and praseodymium and samarium and production of heavy rare earths, such as dysprosium and terbium, to name a few are much less certain. The key point, and one that is addressed by the legislation before the Committee is that simply lumping all critical materials or all rare earths into one category is not helpful in alleviating supply shortages. Instead, a comprehensive supply demand analysis of the 17 distinct rare earth elements is needed to more fully inform the market as to which materials will continue to be in short supply and those which must be brought online rapidly to avoid downstream supply disruptions.

Once an ore body for these critical materials is discovered and proven to be economically viable for extraction, the lengthy permitting process begins. While many exploration companies and mining interests are quick to decry the arduous and often decade-long permitting process, a few of these company can provide a comprehensive list of the reasons for the delay. This lack of detailed framework for reform prevent companies from expediting their applications.

It does, however, appear that one potential issue is the lack of detailed knowledge of industrial minerals mining and processing with people in position to make or influence decisions. As a result, these people make wrong decisions or don't make one at all, resulting in significant cost delays and normal delays. We want to be very clear. Great Western Minerals Group does not support shortcuts that skirt important environmental and safety protection as it is in no one's best interest. Rather, we are encouraging a streamlining of the permitting process by the identification of unnecessary bureaucracy and inefficiency in the process.

While there are numerous critical materials that the Committee should consider, the situation in rare earths is one of the dearest and is in most urgent need of finding and developing alternative source of supply.

In its legislation, the Committee should not only identify sources for critical materials, but also strive to ensure that a full supply chain is developed in the United States to provide downstream processing and value-added capabilities, such as separation and metal and alloy manufacturing. This problem cannot be solved by mining alone. Nevertheless, solutions are possible.

As a first step, the legislation proposed today makes great strides in providing a more thorough breakdown of critical materials by individual elements. These analysis should include long-term supply/demand comparison and risk assessments related to elements, prospects for long-term availability and be made available to people

in decision-making positions as it relates to permitting of exploration and permitting.

The United States can also take near-term steps to solve challenges, such as its national security concerns, simply by creating a small inventory for those rare earths in short supply as required by Representative Coffman. Additionally, the United States and its allied nations must develop downstream commercial capabilities to produce metals currently 100 percent produced in China, and rare earth magnets currently produced primarily in China. Without these capabilities, there will be no demand to reestablish a vibrant rare earths economy.

We are hopeful that a bipartisan solution will include the best elements of both bills in a final piece of legislation by this Committee. Such legislation would serve as an important first step in mitigating the rare earth and critical materials crisis. Thank you again for the opportunity to testify. I look forward to your questions.

[The prepared statement of Mr. Engdahl follows:]

Statement of Jim Engdahl, President & Chief Executive Officer, Great Western Minerals Group

Chairman Lamborn, Ranking Member Holt, distinguished Members of the Subcommittee,

Thank you for the opportunity to testify today. As President & Chief Executive Officer of the Great Western Minerals Group, I am pleased to participate in this important legislative hearing on H.R. 2011, the National Strategic and Critical Minerals Policy Act of 2011 and H.R. 1314, the Resource Assessment of Rare Earths Act of 2011. These bills offer important elements of a much needed comprehensive solution to challenges in developing a complete, reliable and competitive rare earth supply-chain in the United States.

Great Western Mineral Group and Formation Metals, Inc.

I am particularly pleased to present both an international perspective, related to GWMG's rare earth projects, and a domestic perspective related to Formation Metals' Idaho Cobalt Project.

The Great Western Minerals Group is a rare earth processor pursuing a vertically integrated business model. Focused primarily on the permanent magnet industry, GWMG owns two rare earth alloy manufacturing companies: Great Western Technologies Inc. of Troy, Michigan and Less Common Metals Limited of Birkenhead, United Kingdom. In addition to permanent magnet alloys, these manufacturers can produce a variety of specialty alloys for the battery, automotive, aerospace, defense and clean energy industries. As part of our vertical integration we also hold interests in several Rare Earth exploration and development properties in the United States, Canada and South Africa.

I am also a member of the Board of Directors of Formation Metals, a company currently developing the United States' only primary cobalt project in Idaho.

Resource Development

As highlighted in the legislation under discussion today, a solid understanding of the availability of critical minerals is a key starting point for their successful development. With rare earth projects coming online outside China, including GWMG's Steenkampskraal mine in South Africa and shortly thereafter, Hoidas Lake in Saskatchewan Canada, it is likely that supply for light rare earths, such as lanthanum and cerium, will soon ease current shortages. However, the prospects for light rare earths related to permanent magnet manufacturing, such as neodymium, and production of heavy rare earths, such as dysprosium and terbium to name a few, are much less certain.

The key point—and one that is addressed by the legislation before the committee—is that simply lumping all "critical materials" or all "rare earths" into one category is not helpful in alleviating supply shortages. Instead, a comprehensive supply-demand analysis for the 17 distinct rare earth elements is needed to more fully inform the market as to which materials will continue to be in short supply and those which must be brought online rapidly to avoid downstream supply disrup-

tions. It is necessary to first identify materials that will be in shortfall, then develop, as rapidly as possible, sources of supply for those material in shortest supply (such as the heavy rare earths).

Permitting

Once an ore body for these critical materials is discovered and proven to be economically viable for extraction, the lengthy permitting process begins. While many exploration companies and mining interests are quick to decry the arduous and often decade long permitting process, few of these companies can provide a comprehensive list of the reasons for the delay. This lack of a detailed framework for reform prevents companies from expediting their applications. It is our hope that this hearing and the legislation under considerations will be a catalyst for both industry and government in identifying specific roadblocks and systematically eliminating them.

We want to be very clear, GWMG does not support shortcuts that skirt important environmental and safety protections, as these are in no one's best interest; rather, we are encouraging a streamlining of the permitting process by the identification of unnecessary bureaucracy and inefficiency in the process.

Rare Earth Supply Chain Development

While there are numerous critical materials that the committee should consider, the situation in rare earths is one of the direst and is in most urgent need of finding and developing alternative sources of supply.

In its legislation, the committee should not only identify sources for critical materials, but also strive to ensure that a full supply chain is developed in the United States to provide downstream processing and value-added capabilities such as separation, and metal and alloy manufacturing. This problem cannot be solved by mining alone.

There are many challenges facing our industry. For example, much of the solvent extraction expertise required to convert ore to separated oxides is no longer resident in the United States, and is found today primarily in China.

Also, even with recognition of the need in the United States for supply of rare earths and other critical materials, without domestic demand for downstream, value-added products, it is inevitable that industry development in the United States will be limited. Quite simply, companies cannot invest in value added manufacturing capability without the demand to justify it.

Solutions

Nevertheless, solutions are possible.

As a first step, the legislation proposed today makes great strides in providing a more thorough breakdown of critical materials by individual elements. These analyses should include long-term, supply-demand comparisons and risk assessments related to the elements' prospects for long-term availability.

The United States can also take near term steps to solve challenges such as its national security concerns simply by creating a small inventory of those rare earths in short supply as required by Representative Coffman in an amendment to the FY12 National Defense Authorization Act.

Additionally, the United States and its ally nations must develop downstream commercial capabilities to produce metal, currently 100% produced in China, and rare earth magnets, currently produced primarily in China. Without such capabilities, there will be no demand to reestablish a vibrant rare earth sector in the United States. These holes in the supply-chain might very well lead to the United States' status as nothing more than an exporter of raw materials to nations such as China and Japan, which would transform those rare earth oxides into more specialized materials—materials that we would then have to import to support military and energy technologies in this country.

Conclusion

We are hopeful that a bi-partisan solution will include the best elements of both bills in a final piece of legislation passed by this committee. Such legislation would serve as an important first step in mitigating the rare earth and critical materials crisis. By taking this first legislative step, and then moving on to additional legislation such as the comprehensive Coffman RESTART bill to address issues such as manufacturing and national security challenges, the United States Congress can demonstrate important leadership in the global community regarding the ever more important issues surrounding the United States' precious natural resources.

Thank you again for the opportunity to testify. I look forward to your questions.

Mr. LAMBORN. Thanks to you and to all of our witnesses for your testimony. I will begin the questioning.

Mr. Doebrich, the Energy Policy Acts of 2000 and 2005 had provisions requiring that DOI and the USGS inventory the onshore Federal estate to determine what the oil and natural gas resources were and what impediments there were for access to these resources. These ranged from statutory to administrative withdrawals and lease stipulations to protect game and threatened and endangered species, and these are known as the EPCA studies.

Interior owns that database. How difficult would it be to utilize the computer program designed to accomplish the EPA studies, and how difficult would it be, in other words, more specifically to add another data layer to that program that includes solid minerals?

Mr. DOEBRICH. With regards to the computer program you are referring to, I am assuming this is the one used by the EIA? That is unknown at this point. That would require from our standpoint a better understanding of what the capabilities of that computer software is before I think I could answer that fully. But I would be happy to get back to you on that.

Mr. LAMBORN. Please do. If the EPCA studies—the data programming—were to be utilized by expansion, our understanding is that that program allows for adding data layers. That is part of why we wanted the ambitious six-month requirement for completion of this study, thinking that that would be feasible. So please get back to us on that.

Mr. DOEBRICH. If I could elaborate on that, with regards to 2011 and the six-month provision, it is important I think to, at least from our term to what assessment means, when we use the term "assessment," which is what is used in the bill, we mean assessment of undiscovered resources. So first we do an inventory of known resources and then use that as a foundation to do an assessment of undiscovered resources. So I would just ask if, in fact, that is how you are using the term "assessment" in the language of the bill?

Mr. LAMBORN. We are going to have to discuss that and pin that down because we are not anticipating sending teams of prospectors throughout the entire 2.5 billion-acre Federal estate to redo 113 minerals.

Mr. DOEBRICH. No, I understand. It is just that when we talk about assessment then we are talking about the assessment of undiscovered resources rather than an inventory of what we know already and so I guess we would like clarification perhaps on what you mean by "assessment."

Mr. LAMBORN. Now it is our understanding that you are in the middle of currently doing an assessment, can you update us on that?

Mr. DOEBRICH. We are in the process of preparing for our new national assessment. In that process over the last two or three years, we have been updating our databases, our mineral deposit models and grid and tonnage models that we use in these assessments. So our intent has been to initiate that assessment in 2013. We are in the process now also of determining what we would assess for. The last time we did a national assessment back in 1995 it was for gold, silver, copper, lead, zinc and clearly we need to do

more than that, given the concerns of various other critical minerals today.

So that is what we are planning for. We actually are updating models that provide resources of a variety of critical minerals, including rare earths. And so our plan all along was in 2013 to be in a position to initiate that assessment, which would more or less be a four- or five-year effort.

Mr. LAMBORN. We appreciate what you have been doing, but our hope is to help jumpstart some of that and get things actually moving. So thank you for that answer.

Mr. Duclos, given the potentially serious problems our country would face if we have a critical shortage of strategic minerals, including rare earth metals, but going beyond those would the National Association of Manufacturers prefer legislation that calls for a comprehensive study to be finished in six months or three years?

Mr. DUCLOS. I would certainly think the faster the better. In fact, really what manufacturers need is a comprehensive action here that goes beyond this assessment. It also invests in solutions. Also investing in the mining and the workforce and developing of technologies can minimize and recycle these materials. It has to be comprehensive.

Mr. LAMBORN. Thank you.

I would now like to recognize the gentleman from New Jersey, the Ranking Member.

Mr. HOLT. Thank you, Mr. Chairman. We will move right along because I see votes have begun on the Floor.

There is much to discuss in this issue only some of which is in the jurisdiction of this Committee. I would like to begin with just a comment.

Mr. Sullivan, as an Alaskan I am sure you are aware of the name of Seward. It was Seward's folly to purchase all of Alaska and its contents for a little over $7 million. We are now talking about a bill that would assess all of the strategic mineral resources of the United States with an authorized amount of I think $1 million. I think we need to return the word "investment" to our vocabulary here and recognize that it would, indeed, be an investment to provide the kind of assessment that we need in this area.

A couple of things, Mr. Duclos, in your testimony you talked about the need to pay attention to the workforce. That is within the jurisdiction of our Committee, particularly as it applies to mining schools and so forth. Briefly, what specifically do you think we need to do? Do we need new programs, or larger enrollment in existing programs?

Mr. DUCLOS. Yes, all of the above. The fact is that currently today there isn't a robust workforce in, for example, the rare earths, either mining or processing. Inasmuch as that presents some challenges in terms of making for efficient processing of these materials, we need to have more folks involved.

Mr. HOLT. If you or NAM, the National Association of Manufacturers could give us specific recommendations, we would welcome that.

Mr. DUCLOS. Certainly. We could do that.

Mr. HOLT. I noticed a slight discrepancy between your oral testimony and your written testimony. You were talking about the long

permitting process. In the written testimony you said few of the exploration companies can provide a comprehensive list of the reasons for the delay. In your oral testimony you said a few of these companies can provide. In your written testimony I was relieved to hear finally someone say what I thought you were saying. It gets frustrating around here to hear complains about the big, bad Department of the Interior not giving permits because when you ask people to explain what is the problem the story ends.

So they have no problem with the Lamborn bill taking a look at this issue, but I would like you to clarify, are you saying that you cannot put your finger on actual problems in the permitting process or are you saying you can put your finger on problems in the permitting process in the big, bad Department of the Interior.

Mr. ENGDAHL. I think what I am saying is that you can put your finger on a few of them. I think there is a little more than that. I think one of the examples that really comes out is the Formation Metals Group that developed the Idaho Cobalt Project mine in Idaho which will go into production here fairly shortly. That was a 13-year process from discovery to which will be to production next year.

There were conflicting issues as it related to approvals through the EPA and through Forestry. What really came out of it is that the people in those positions making decisions didn't necessarily understand the full implications and that goes, I think, beyond cobalt.

It goes more in particularly and would be much more applicable in the rare earths sector where the knowledge of what happens downstream after you mined is very critical to understand what it takes—the cost, et cetera.

At the same time, there were some very, very good things that happened as it related to the Formation Idaho Cobalt Project. One program that is in play right now is your industrial bonds and that, in the eleventh hour, allowed Formation Metals to get financed. Those industrial bonds are something that I think should be continued to be looked at and expanded on, as it relates to very reasonable sources of financing, without putting residents of the United States at any financial risk or very little financial risk.

Mr. HOLT. We are short on time because of votes on the Floor, so I thank the Chairman.

Mr. LAMBORN. Thank you all for being here. We do have to go cast a vote. It finishes in roughly six minutes. We are going to rush over there, vote, and then come straight back. Thee is only one vote, so it won't take that long while we are over there. So in roughly 15 to 20 minutes, we will reconvene. I would ask your indulgence to remain during that time and then we will finish up our questions. Thank you so much. We will be in recess.

[Recess]

Mr. LAMBORN. Mr. Flores, we will have questions from you.

Mr. FLORES. Thank you, Mr. Chairman.

Mr. Sullivan this question is for you. There is a little bit of variability among some of the testimony, both written and verbal with respect to the regulatory environment and I think you have some first-hand experience in terms of dealing with the EPA in Alaska. I was wondering if you could share those reflections with us.

Mr. SULLIVAN. Yes, sir. One of the things that we think——

Mr. FLORES. I hate to interrupt you. Could you also talk about the Department of the Interior as well?

Mr. SULLIVAN. Sure.

Mr. FLORES. Thank you.

Mr. SULLIVAN. One of the things that actually we were just discussing, particularly on large mining projects, is that what we think would be very useful to have within the Federal Government is a single point of contact that helps shepherd companies through the permitting process itself. That is something that in Alaska at DNR we have a group called the Large Project Mining Group and that is exactly what we do with all the different state permits on large projects. We have a single point, an actual state official who coordinates all the permitting and we think that that system—we have a lot of our own issues in terms of permitting reform that we are working on, but we think that that is one area of our permitting that actually works quite well and has made it more efficient. We think that a model like that similar with regard to Federal permitting could be very useful and help to deal with some of the inefficiencies that we have seen.

As I mentioned, the Kensington Mine example in Alaska was just a case that—there was also litigation, but it was problems with regard to Federal agencies overlap, different interpretations of Federal law and it took almost 20 years.

Mr. FLORES. We have heard testimony about how long it takes in Australia and other developed countries. In your view, what do you think the optimum time period is for permitting that still allows the regulators to be satisfied that they have properly addressed all the environmental issues, safety issues, so forth versus also being responsive to what we are trying to do here and that is to restore our rare earths footprint?

Mr. SULLIVAN. I think, and I would agree 100 percent with what Mr. Engdahl said. In the permitting, when we advocate for efficiencies and timeliness and certainty, that does not mean we are advocating for cutting corners on environmental regulations or safety. However, seven to ten years, which is as I mentioned the average in the United States, just makes it too difficult in terms of permitting certainty. I don't know what the number in Canada is. I did mention the average time frame in Australia, which is a country that has also got a strong record. So I think more along the lines of that time frame, one to two years, three years maybe max as opposed to seven to ten I think can bring a lot more certainty and accelerate the production that I think we all recognize we need.

Mr. FLORES. OK.

Mr. SULLIVAN. There is one other issue, Congressman, if I may? There are processes sometimes like the EIS and the 404' under the Clean Water Act a lot of times Federal agencies view that you have to do one and then you have to do the other. If there are ways to actually start on those together in parallel, you could cut down a lot of time.

Mr. FLORES. Thank you. Mr. Chairman, I yield back.

Mr. LAMBORN. Thank you. Mr. Johnson of Georgia.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman. Mr. Ranking Member, and Subcommittee members for joining us today. I appreciate the Subcommittee allowing me to join you today.

Mr. Chairman, it is a testament to your statesmanship that you have placed a bill offered by a Democrat on the table for discussion today. That bipartisan approach will be necessary if we are going rise to the level of solving the important challenges that we face as a nation. So I deeply appreciate the spirit with which enabled me to come here. I also thank Congressman Markey and Congressman Holt for their hard work in helping to develop H.R. 1314, the RARA Act, which jointly introduced earlier this year.

Mr. Doebrich, H.R. 1314 would direct USGS to conduct a global assessment of rare earth element resources. Does USGS support the goals of the bill?

Mr. DOEBRICH. Yes, sir, we do. We think, as written, the language represents a reasonable approach to better understand the global endowment of rare earths development resources.

Mr. JOHNSON OF GEORGIA. It is a fact, is it not, that 97 percent of rare earth mineral production takes place in China currently?

Mr. DOEBRICH. Production. That is correct.

Mr. JOHNSON OF GEORGIA. China has recently slapped on some export or has increased export quota and also export tariffs, which have raised the price of these rare earth goods to the tune at least 400 percent, are you aware of that?

Mr. DOEBRICH. Yes, sir.

Mr. JOHNSON OF GEORGIA. So as the supply dwindles, the price increases and we are losing control over our ability to compete in this global economy without these kinds of materials being available, is that true?

Mr. DOEBRICH. Yes, sir.

Mr. JOHNSON OF GEORGIA. Now do you agree that the completion of a global assessment of rare earth resources is a logical next step to ensure that the United States understands adequately where these rare earth elements are located across the world?

Mr. DOEBRICH. Yes, we do. I mean the issue is China is a supply risk issue. When we have commodities being produced from geographical—the production is geographically concentrated that present potential a supply risk issue. Other commodities, for example, copper where production is geographically disbursed, even though it is a very important commodity for a lot of things that we manufacture, the supply risk is not there because it is geographically disbursed. So I think with a better understanding of rare earth resource potential supply with potential friendly trading partners, if you will, that perhaps would put us in a better position to understand where our future supply may come from.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Doebrich.

Mr. Engdahl, from your vantage point in the business of rare earth element production, do you agree that H.R. 1314 would be an important piece of a broader effort to secure U.S. supply of rare earth elements?

Mr. ENGDAHL. Yes, I do. First off, Congressman Holt, I would just like to clarify the first point. In my written statement that is correct—you are correct on that. And Mr. Johnson, I appreciate your leadership on this issue as well.

On your question, yes I do believe it is important to have a global perspective on this as well to really understand—the knowledge of any commodity you really have to understand the global perspective as we are operating in a global industry right now. And to really have an effective industry within your own country, you really do need to understand the big picture.

Mr. JOHNSON OF GEORGIA. It does cost money in order to develop this information that we need in order to compete in this century.

Mr. ENGDAHL. Yes, it does.

Mr. JOHNSON OF GEORGIA. Ten million dollars over three years does that sound to be an excessive amount to you to undertake this global survey?

Mr. ENGDAHL. I would probably have to think about that a little bit, but it sounds like it might be in the reasonable ballpark, but depending how in depth you want to really go as this industry is changing radically by the day and new sources are coming through right often.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman.

Mr. LAMBORN. All right. Thank you.

Next to ask question is Mr. Johnson of Ohio.

Mr. JOHNSON OF OHIO. Thank you Mr. Chairman for holding this important legislative hearing on how critical and strategic minerals are essential to our economy, our livelihood, and in fact our national security. I want to thank the panel for being with us this morning.

I am proud to be an original cosponsor of H.R. 2011, the National Strategic and Critical Minerals Policy Act because as we have heard from the panel's testimony and the witnesses today these rare earth minerals and components are important consumer products, but more importantly to defense equipment.

It is clear to me that America doesn't currently have a rare earths strategy to ensure that America has access to these important minerals. H.R. 2011 would give us the information necessary to understand what resources America has and from there we can develop a plan that allows for a strong domestic mineral policy that creates American jobs and reduces our dependence on foreign sources for these rare earth minerals. I do have a couple of questions.

Mr. Engdahl, in your testimony you briefly mentioned the need for permitting reform and how Great Western Minerals has operations overseas. Can you give this Committee an idea of how the U.S. process compares to other countries where you are active, based on your experience?

Mr. ENGDAHL. Yes. We are very familiar with the permitting process in Canada and South Africa is where we are operating right now. In Canada, the permitting process is not a whole lot different than it is in the United States and the average time to take a mine from exploration to production is very similar to unfortunately what Mr. Sullivan had mentioned. Seven to ten years is kind of the expected from discovery right through. So we have the same issues as it relates to some of the permitting issues as well.

On the other side, in South Africa my experience there is somewhat limited as we had already bought an operation that was virtually fully permitted right through to mine production, as it was

a former existing producing mine. But in South Africa we understand, and the experience that we have there is that it will be somewhat less, certainly, than the seven to ten years, but how much we are not sure. The bureaucracy is still fairly heavy there as well.

Mr. JOHNSON OF OHIO. Is Canada and South Africa the only two places where you do business overseas?

Mr. ENGDAHL. It is the only two places at the moment that we are in the process of developing and exploring mining operations. We have other operations in the alloy manufacturing in England.

Mr. JOHNSON OF OHIO. OK.

Commissioner Sullivan you mentioned how Governor Parnell recently wrote the President and the Secretary of Energy and asked the Administration to further coordinate with Alaska so that we are properly facilitating the development of rare earth minerals in Alaska. Have you heard back formally or even informally from the Administration on this request?

Mr. SULLIVAN. Yes, sir.

Mr. JOHNSON OF OHIO. What is the result?

Mr. SULLIVAN. This is a little bit different from my testimony yesterday, but I think in this regard the conversations we have had have been positive. There is an interest from the Administration on working with the State of Alaska. As I mentioned, we are trying to do a lot of things on our own, but we have had discussions with White House officials and there is a lot of interest in terms of coordinating and cooperating. So we are viewing that constructively.

The Governor in his letters to the Secretary and the President has had a lot of recommendations in terms of where we can cooperate. We haven't gotten specifics on that yet, but the initial feedback, as I mentioned has been positive.

Mr. JOHNSON OF OHIO. OK.

For anyone on the panel, Mr. Engdahl you as well, is a seven- to ten-year permitting process is that acceptable in your mind in terms of being a leader and going after these rare earth minerals?

Mr. ENGDAHL. It is always nice to be able to do it in the shortest period possible, and whatever that period is without impacting in a negative way the environment and safety. I think the opportunity to reduce below seven to ten years is absolutely there just through improvements in the efficiencies and without affecting in a negative way the environment and safety. Really, it comes down to coordination. In our case, where I am fairly familiar on the Canadian, is the cooperation between provincial and Federal governments as opposed to state and Federal governments here. The cooperation between the two is one of the holes that create a lot of the inefficiencies in the process.

Mr. JOHNSON OF OHIO. Thank you very much. I yield back, Mr. Chairman.

Mr. LAMBORN. Thank you.

Mr. Thompson of Pennsylvania.

Mr. THOMPSON. Thank you, Chairman. Thank you gentlemen for your expertise and your testimony on this very important issue where obviously access to needed minerals, rare earths—all minerals I think are extremely important to our country from many different perspectives—and we have heard about a lot of different,

multiple variables. I want to stay with the permitting process and so my question is for maybe Mr. Doebrich or maybe Ms. Burke. I don't know who is most appropriate.

I have heard a lot of numbers, seven to ten years in terms of Federal permitting. One specific example of a gold mine was I think Kensington was referenced in someone's testimony for 20 years, is our agencies working to improve the efficiency of that process? If so, what is the goal and what measures are being taken to improve the efficiency of that process or is seven to ten years the most efficient that we will ever get?

Mr. DOEBRICH. I will have to defer to Ms. Burke here, please.

Ms. BURKE. Good morning and thank you for this opportunity to clarify some of this information.

It is true that from discovery to production that it takes seven to nine or ten years. But generally, with respect to large mines from the beginning of our processing of a plan or an application, if you will, to our decision averages about four years.

Mr. THOMPSON. What kind of variables go into that period of time?

Ms. BURKE. There is the initial review of the plan for completeness and oftentimes there is some back and forth that we need to ask for additional information. There is the NEPA process, which is by far the largest part of that time, which can take I would say it is a three-year average, but we know it can take more time than that sometimes.

Then there is the financial guarantee negotiation, if you will, to determine what kind of bonding is necessary and then to get to the final approval. So all that is wrapped up into a four-year average.

Mr. THOMPSON. Thank you.

Commissioner Sullivan, first of all, congratulations on frankly based on your testimony Alaska's efforts to really facilitate domestic production of strategic minerals, seeing the things that you mentioned, the actions you have taken in Alaska, the bonding authority, road construction studies and the permitting, single point of contact.

In your efforts to refine and streamline the permitting process from a state perspective, are there lessons that you have learned in your state that you would recommend to this Committee in terms of considering on a more national perspective?

Mr. SULLIVAN. Yes, sir. I think the one that I mentioned earlier is the single point of contact. And we have this team in the state and we permit large mines on state land and work through that. This is a project team that does not just mining, any major project development in the state. If an industry or company wants to go through this large project team, they essentially get an advocate who is the single point of contact and who coordinates all the permitting within the state government system. We have been complimented on that working very well because this person knows the system well and can help streamline and accelerate what the different agencies within state government have to do in terms of permitting. We think a system like that could work in the Federal permitting process and could be a good model on working through these efficiencies and making sure different agencies have similar goals.

Mr. THOMPSON. Getting back to Ms. Burke, we had a gentleman in here from another agency. He was talking about how the Administration is going to fast track environmental assessment and I believe it was for wind offshore, which I thought was a brilliant idea, building a very fast track, efficient, NEPA assessment. I don't know if it was considered that. Has there been any consideration of that with the agency since it sounds like the largest part of—and I am not talking about shortcuts that would threaten the environment in any way, but really just streamlining the process.

It looks like the Administration is willing to do that for some alternative energies. Has there been any consideration, as you described, that this is probably the largest piece of that permitting time, the extensive permitting time?

Ms. BURKE. Yes, you are correct that with respect to renewable energy that we have a fast track process in that we have deployed additional resources so that we are able to get from start to finish more expeditiously.

With respect to mining, we have not employed such a concept. However, we are working, and I know that it can be frustrating for the mining companies, for everyone involved, we are working to be better coordinated across the Federal family and that involves coordination early at the beginning of the process so there can be an exchange of information and so we don't get rather far down the line and then have to back up and fix some things. So I think my time has expired.

Mr. THOMPSON. I would just offer that I think the return investment from mining—we are talking about rare minerals so we don't want to be dependent on China. The return on investment by doing that for mining I think would be a much bigger yield than the return on investment from alternative energies.

Mr. LAMBORN. Thank you.

Now with the agreement of the witnesses, I would like to have a second round of questions. There is a limited number of us here, so it should go pretty quickly. Seeing agreement, I will go ahead and start the second round.

Madame, you just mentioned, if I heard you right, that you expedite renewable energy projects, but not mining or oil and gas projects, did I hear you correctly?

Ms. BURKE. That is correct. We have a process for expediting renewable projects.

Mr. LAMBORN. Why don't you give the same what I would consider equitable expedited review to all projects?

Ms. BURKE. We have made some decision prioritizing and are open to discussion about how we should be deploying our resources, but we have made the decision as an Administration to make renewable energy one of our priorities.

Mr. LAMBORN. So this is just in the last two years or so?

Ms. BURKE. Actually, the deployment of resources began during the last administration, but we have certainly made it a more robust program during this administration.

Mr. LAMBORN. That is something we are going to want to delve more into. I can guarantee you that.

Mr. Duclos, above and beyond the rare earth minerals, what other minerals would you consider strategic or critical, or are there others?

Mr. DUCLOS. Yes, we have done an assessment based on supply and price risk as well as criticality to GE, so this is a GE assessment in terms of what elements are critical. And to be honest, these are proprietary information because we consider this analysis. So the process was a quantitative process of assessing supply and demand risks as well as a quantitative process of assessing the criticality to our company. So those things that ended up high on both of those scales are materials that we are looking at in terms of developing a comprehensive plan to minimize the risk.

It is based on a procedure that the National Academy has developed a couple of years ago and actually that the Department of Energy used for their study that came out in December on critical elements for green energy. What comes out of this is the fact that there is a limited set of elements that you really do need to focus on and we need to do that analysis so that we can get on with solving the issues. I would say that these assessments of the supply and demand are a key part of that. Certainly, as manufacturers that need to do this analysis that supply and demand risk is pretty much independent of who you are, OK. It is the impact access that depend on who you are.

So by having this analysis done, it simplifies our analysis by a factor of two, roughly. It is something that I think the Federal Government certainly can helps.

Mr. LAMBORN. So it is fair to say without going into proprietary information that there are elements above and beyond the rare earths that are potentially critical or strategic?

Mr. DUCLOS. Yes, speaking from the standpoint of General Electric rare earths are definitely high on the list, but there are others. yes.

Mr. LAMBORN. Also for the National Association of Manufacturers, would the same hold true?

Mr. DUCLOS. At this point I can only speak for GE.

Mr. LAMBORN. But certainly GE. OK. Can this change in the future as new technologies drive demand for new materials?

Mr. DUCLOS. Yes. We have been doing these analyses for years now. We do see elements moving around in this chart of demand and supply risk versus impact. It does depend on time.

Mr. LAMBORN. So looking at the two bills that are in front of this Committee today, would you prefer a study that focused only on the rare earths or on the broader spectrum of critical minerals?

Mr. DUCLOS. Since there are a few elements that we do consider critical outside of the rare earths, it should be a bit broader. However, our focus right now would be on the rare earths and the NAM's position is that rare earths are clearly the area that needs to be the focus today.

Mr. LAMBORN. OK. Thank you. And is it important to know, as H.R. 2011 calls for, what part of the nation's mineral endowment is open for mineral entry and what is not available?

Mr. DUCLOS. From my standpoint, I guess I am not expert enough to address that.

Mr. LAMBORN. Would any of the other witnesses care to answer that particular question? Mr. Sullivan?

Mr. SULLIVAN. Yes, sir. I think it is a very important question. I think that in my testimony there are very significant parts of Alaska, which are Federal land, but there are significant parts of that Federal land that are not open to mineral exploration. What we would not propose is to say everything should be open, but when we have done an assessment, and we are doing our state assessment right now is going to be both state lands, Federal lands, and native lands.

When we do an assessment and if we find something that has a lot of potential—and as I mentioned in the testimony we have 72 different occurrences of rare earth elements in Alaska. If we do see that and it is in a Federal area where it is closed off to mineral exploration, we believe it would make sense on the highly prospective areas to carve out an area on those Federal lands that are currently banned from exploration to actually make an exception in those areas.

Mr. LAMBORN. Thank you all for answering the questions. Ranking Member Holt.

Mr. HOLT. Thank you. Some good exchanges.

Mr. Duclos, I think we will want to, as we look at supplies of rare earths and critical minerals look at alternatives, manufacturing tradeoffs and substitutions as well as opportunities for recycling. I am wondering whether we or whoever we designate to do this will be able to do a reasonable job if we don't have the full cooperation of the users, the manufacturers. Will it be possible to talk about substitutions, will the manufacturers give full cooperation about what is used and what might be used instead of it?

Furthermore, I would like you to first answer the question and maybe others would add to this also of whether recycling is even feasible, whether small amounts of rare earths that are used in certain alloys or certain paints or whatever can be recovered economically, whether that is a reasonable way to go. If it is, whether proprietary limitations would prevent that from being part of any initiative that we would start?

Mr. DUCLOS. Certainly, to address your first question, the availability of these materials is absolutely critical to manufacturing. I mean you can't build these products without them. So manufacturers will be very open in terms of trying to figure out solutions to this.

Mr. HOLT. I mean more open than you would be. You couldn't even say what non-rare earth materials you would consider critical. You weren't talking about amounts. You weren't talking about where they would be used. This is a company that makes everything from plumbing to jet engines. This is where I am wondering where we are going to go with this without being really more restrictive than your company or similar companies would want us to be.

Mr. DUCLOS. Yes. So this is actually I think an area where the Federal Government can play a role. In terms of collecting this proprietary information from companies so that as GE see our use of a particular element increasing over the next three or four years, as we develop technologies and decide to use new elements this is

information that is proprietary because we can't telegraph to our competitors. However, we would be willing to share this with the Federal Government that could then pull in that proprietary information from all of the manufacturers and help develop and see around the corners of where we need to be.

Mr. HOLT. In the short time that we have because I really wanted to get to some other things too, is recycling feasible? Who has looked at that? Mr. Doebrich?

Mr. DOEBRICH. Yes, my understanding is that recycling in the strictest sense was not terribly feasible for rare earths. Actually extracting the rare earths from the manufactured products would be just as difficult, if not more than what is required to extract it from the very complex minerals that they are found in now.

I think where people are talking about recycling is actually really reuse. For example, magnets, neodymium magnets, very strong magnets. If there is a 5-gram magnet used in a discarded product, that 5-gram magnet could be taken out and used in a new product, or that 5-gram magnet could be remanufactured into two smaller 2-gram magnets. So that is the type of reuse as opposed to recycling that I think is what is feasible in terms of rare earth.

Mr. HOLT. Let me get to two quick questions about permitting. Let me ask Ms. Burke. When we talk about streamlining the permitting, how many permits are currently pending, are we talking about ones or twos, or thirties or forties?

Ms. BURKE. Currently, under the Mining Law of 1872, we have 370 pending plans that we are evaluating.

Mr. HOLT. On critical minerals I am talking about. I am sorry. Critical minerals.

Ms. BURKE. Critical I don't have the numbers broken down. Rare earths? None.

Mr. HOLT. OK.

And Mr. Engdahl, just a quick question. Is it true, as I understand, that Canadian companies in international mining operations must adhere to regulations on safety and environment that are at least as strict as Canada's.

Mr. ENGDAHL. That is correct.

Mr. HOLT. Is it also not true that some of the largest and most successful mining companies in the world are headquartered in Canada?

Mr. ENGDAHL. That is also correct.

Mr. HOLT. All right. Thank you.

Mr. LAMBORN. Thank you. I want to thank all of the witnesses for being here today. This has been illuminating, very helpful, and we appreciate your comments and your testimony.

We would like to say that members of the Committee might have additional questions for you for the record and I would ask that you respond to those in writing, if you receive those.

And if there is no further business, without objection, the Subcommittee stands adjourned.

[Whereupon, at 11:30 a.m., the Subcommittee was adjourned.]

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